National Transportation Safety Board

FY21 USDA/APHIS/Wildlife Services Aviation Safety Meeting

Robert L. Sumwalt

December 15, 2020


Lessons from the Ashes:
How good pilots end up in bad situations.

An Impressive Operation

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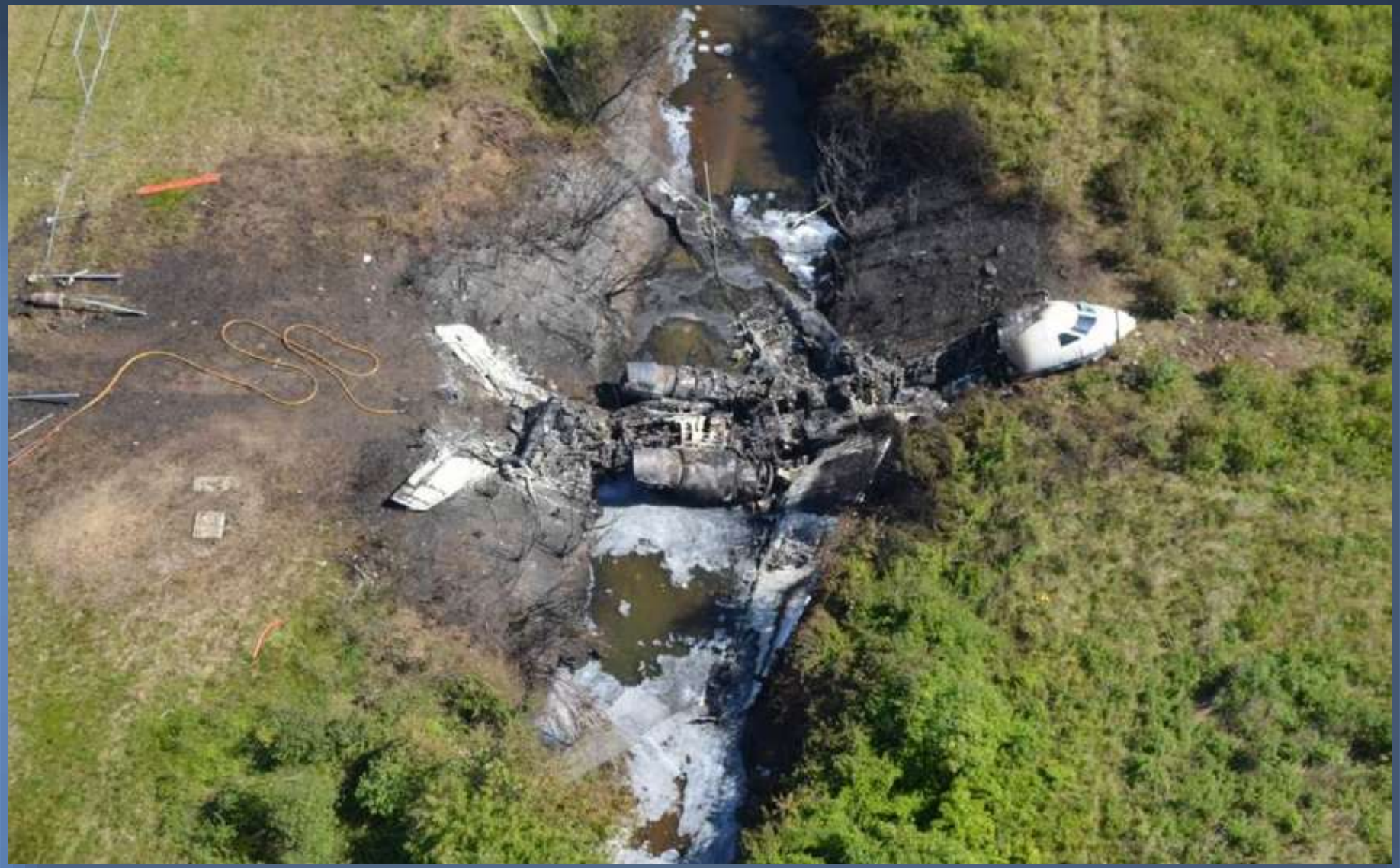
An Impressive Operation

- Full time crew
- Impeccable maintenance
- High training standards
- Going above minimum standards
- Positive audit comments

Positive Audit Comments

- “The SMS of this operator is well-developed”
- “Best practices are consistently employed in all facets of the program”
- “Continuous SMS improvement is actively pursued”
- “The Flight Ops Manual is remarkably well-written and comprehensive”
- “Safety culture within the department is shared among all team members”
- “Open reporting of hazards is consistently encouraged by management”
- “Solid safety program, maturing nicely”

Gulfstream G-IV Crash
Bedford, MA
May 31, 2014
7 Fatalities



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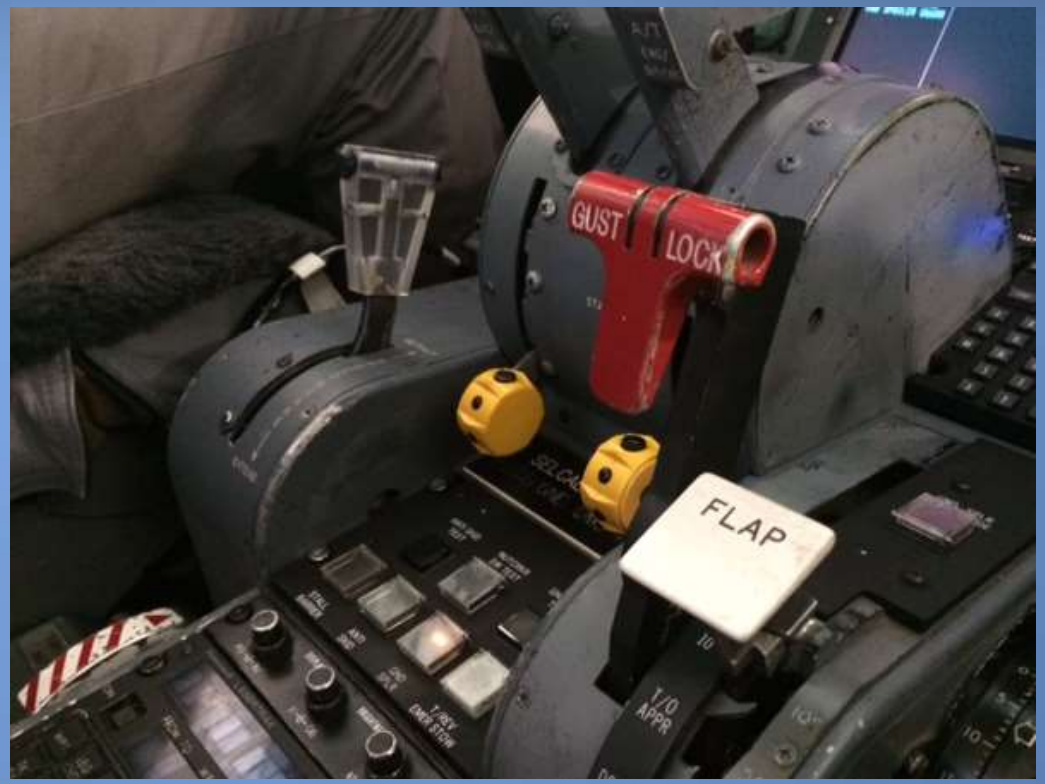
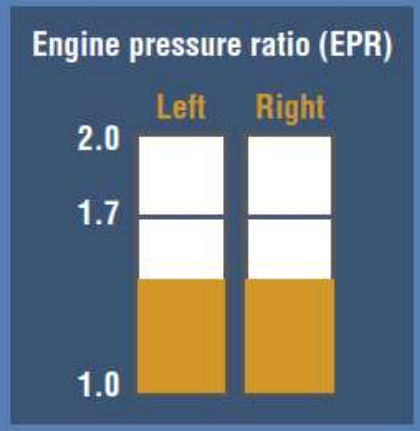
NTSB Investigation Found

- The flight crew failed to disengage the gust lock.
- None of the five manufacturer specified-checklists were verbalized on the accident flight.
- No complete flight control check for 173 of the past 175 flights.



2139:59 PIC (steer) lock is on.
2140:02 PIC (steer) lock is on.
2140:03 PIC (steer) lock is on.
2140:04 PIC (steer) lock is on.
2140:06 PIC (steer) lock is on.
2140:07 PIC (steer) lock is on.

Rwy 11-29 at BED Hanscom Field is 7001 x 150 ft plus there is another 1000 ft of paved overrun before the abrupt encounter with the raised bank of the Shawsheen River.



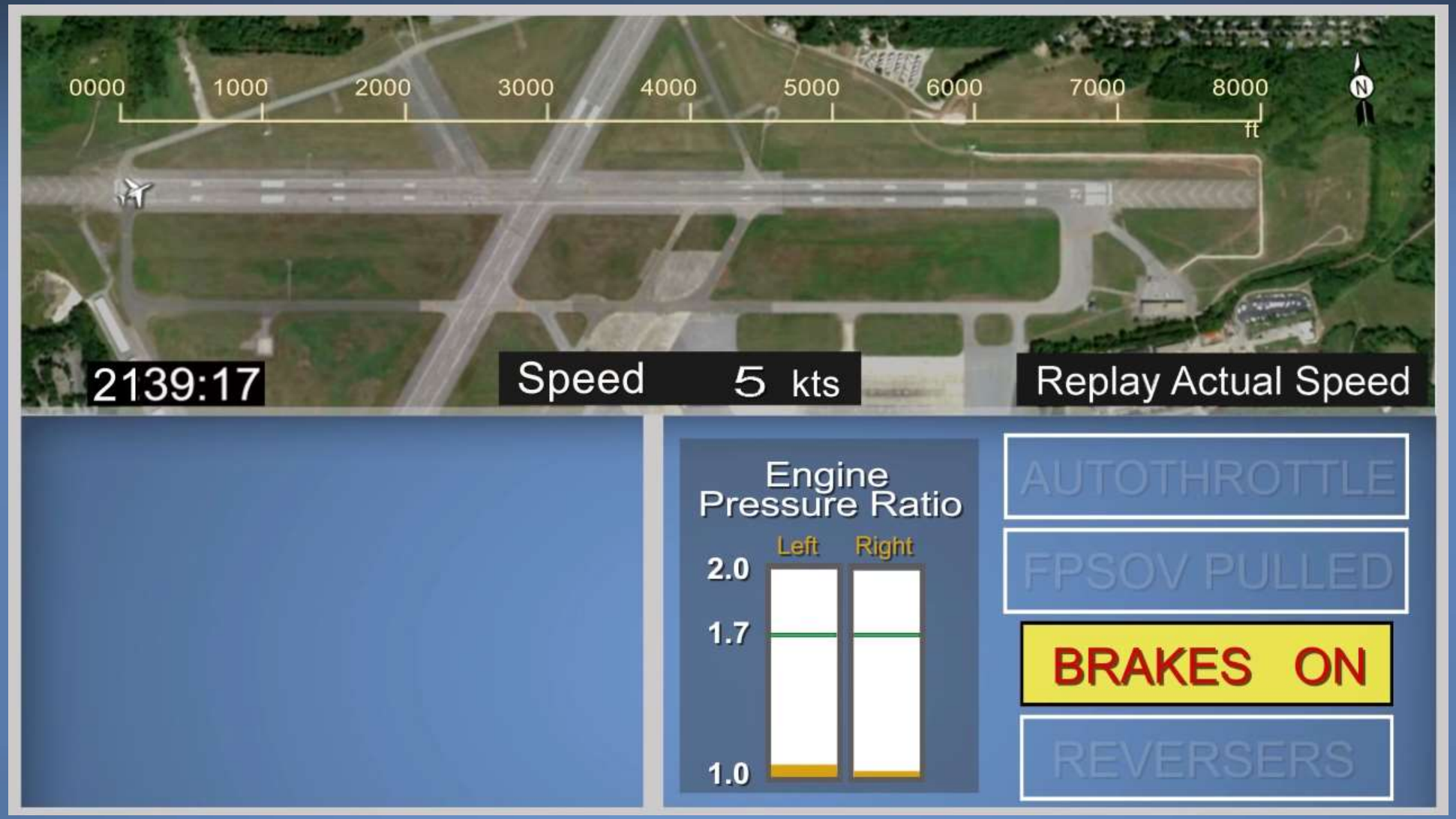
AUTOTHROTTLE

FPSOV PULLED

BRAKES ON

REVERSERS

NTSB


0000
1000
2000
3000
4000
5000
6000
7000
8000
ft
N
2139:17
Speed 5 kts
Replay Actual Speed
Engine Pressure Ratio
Left
Right
2.0
1.7
1.0
AUTOTHROTTLE
FPSOV PULLED
BRAKES ON
REVERSERS

NTSB

The big question:

WHY WOULD AN EXPERIENCED FLIGHT CREW PERFORM THIS WAY?

Procedural Drift

- “When flight crewmembers perform a routine check repeatedly over a long period of time and never encounter an example of its effectiveness as a safety protection, they may experience a decreased perception of the check’s importance.”

- “As a result, they may begin to skip the check and reallocate their efforts toward other goals that they regard as more important.”

Procedural Drift

- “Such changes can lead to the development of new group norms about what is expected and an increasing mismatch between written guidance and actual operating practice.”
- “This increasing mismatch has been described as ‘procedural drift’.”

com·pla·cen·cy

/kəmˈplāsənsē/

noun

a feeling of smug or uncritical satisfaction with oneself or one's achievements.
"the figures are better, but there are no grounds for complacency"
synonyms: smugness, self-satisfaction, self-congratulation, self-regard; gloating, triumph, pride; satisfaction, contentment
"the complacency he felt as a math student was abruptly shaken when he took his first calculus exam"

A fine line

- “There is a fine line separating a relaxed and easy atmosphere in a cockpit from a lax one where distractions can result in critical failures.”
- “Professionalism may be described as knowing the difference between the two.”

  - Honorable John K. Lauber

NTSB Response Operations Center


0722
ALASKA
0822
PACIFIC
0922
MOUNTAIN
1023
CENTRAL
1123
EASTERN
1622
ZULU
PLANE CRASHES INTO HOUSE
GAITHERSBURG, MD
PLANE CRASH
Could this be you?

“The best way to predict the future is to create it.”

- Peter Drucker

Creating a Future of Safety: Two Questions

1. What is our level of Professionalism, Standardization, and Procedural Compliance?
2. How strong is our Safety Culture?

Creating a Future of Safety

PROFESSIONALISM, STANDARDIZATION, AND PROCEDURAL COMPLIANCE

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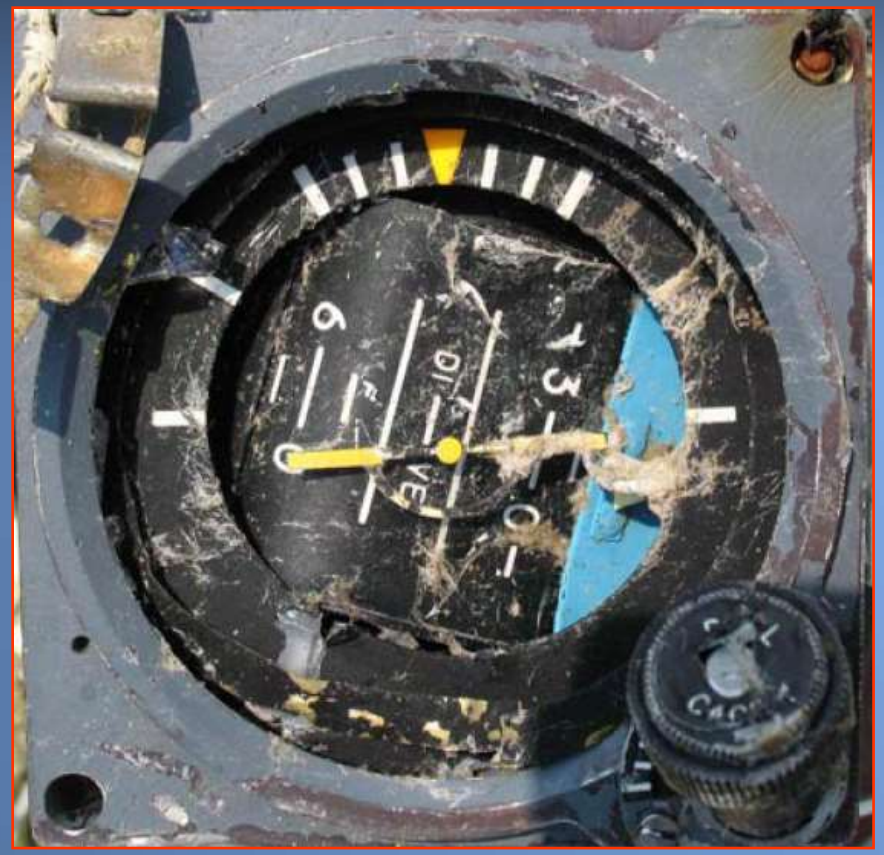


What is the attitude around here?

What is a professional?

- A mindset
  - Precise checklist usage
  - Precise compliance with SOPs and regulations
  - Staying abreast and current with knowledge and skills
  - The ability and willingness to say “I don’t know” or “I am wrong”
  - The willingness to say “no.”

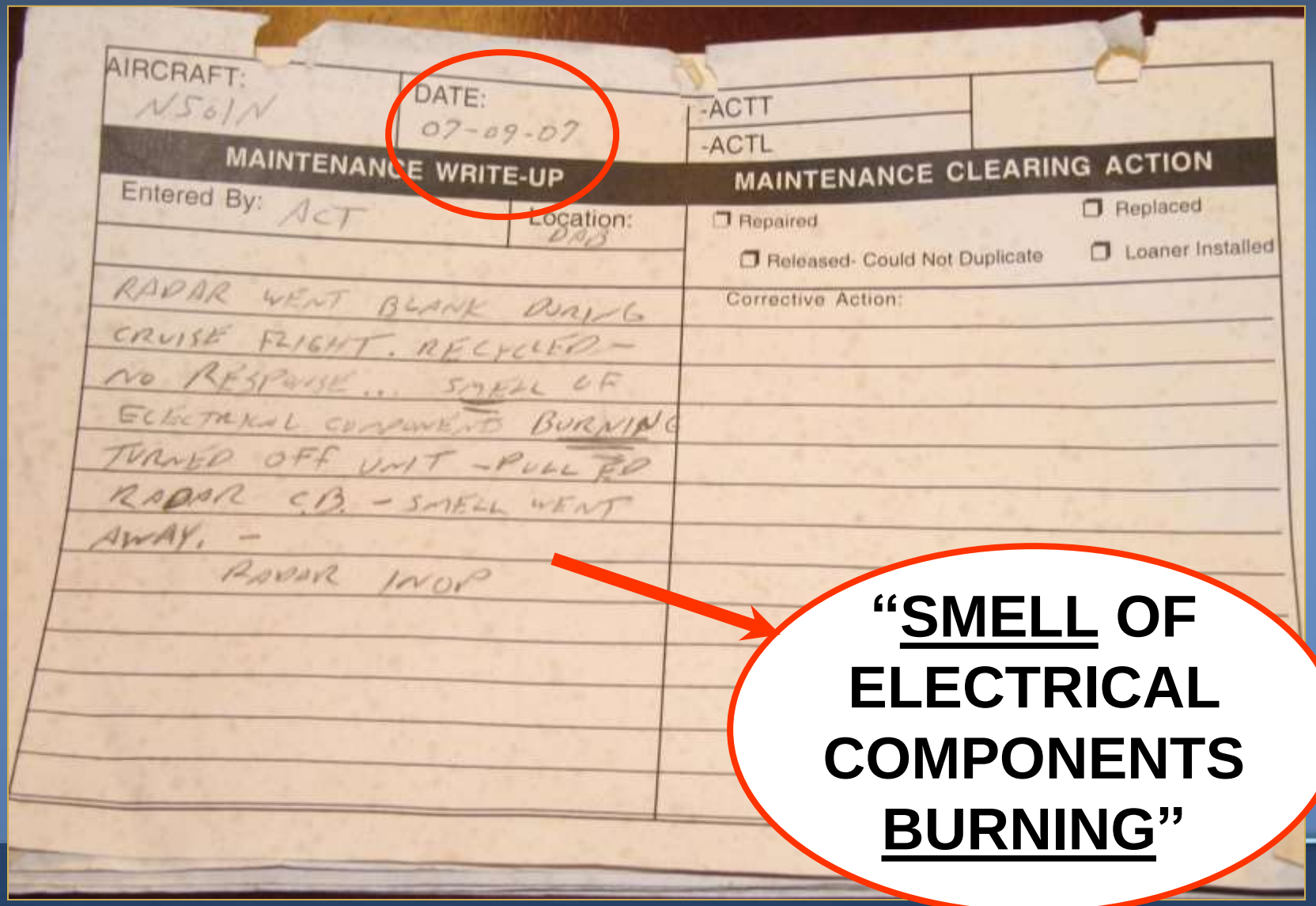

Cessna 310, N501N
July 10, 2007
Sanford, FL
5 fatalities

Declared Emergency

“Smoke in the cockpit.”

“Shutting off radios, elec.”

Maintenance Discrepancy Entry



MECHANIC: “We have a discrepancy with the airplane.”

PILOT: “I know about the radar, I don’t give a # about that, I’m taking the airplane.”

As recounted by mechanic. Source: Ops Group Factual Report. p. 24

Organizations don’t follow their SOPs

- Aviation director could not readily locate SOP manual
- SOP manual viewed as a “training tool”
- Aircraft to only be used for company business
  - Accident flight was a personal flight
- PIC must possess ATP
  - PIC did not possess ATP
- Last 3 maintenance discrepancies had not been addressed

Stated the NTSB:

- “This is contrary to industry guidance for SOPs indicating that procedures should be written the way the organization intends to operate, and once the procedures are in place, the organization makes every effort to operate that way.”

5 in 5


LaGuardia, 1989


LAX, 1991


LaGuardia, 1992


Charlotte, July 1994


Pittsburgh, Sept 1994

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USAir 1016
July 2, 1994
Charlotte, North Carolina
37 fatalities

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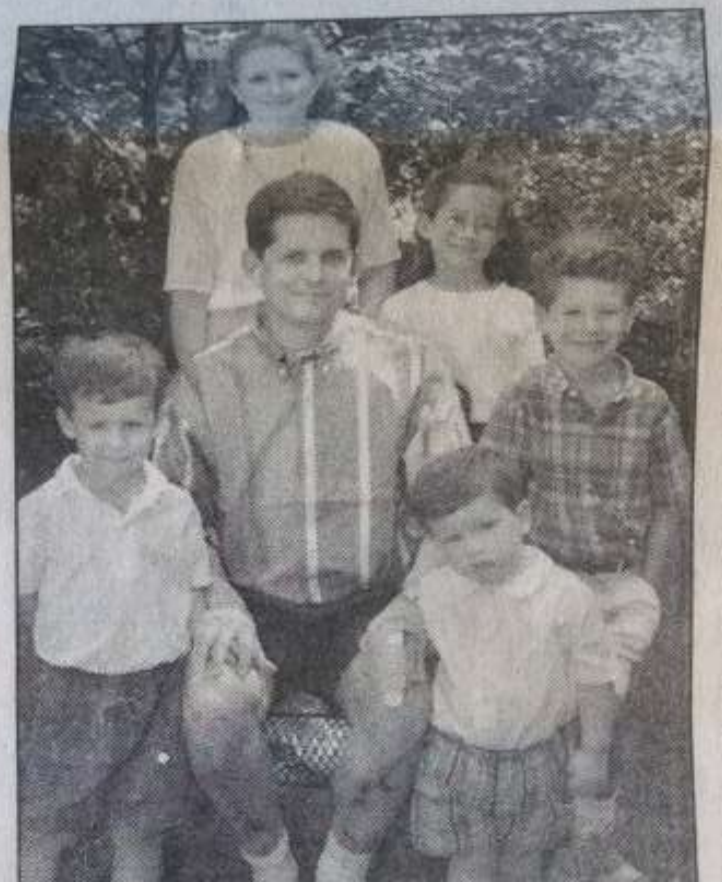
Crash sharpens painful memories of 1994 tragedy

By NICOLE SWEENEY
and JEFF STENSLAND
Staff Writers



It's been nearly a decade since USAir Flight 1016 plummeted from stormy skies in Charlotte, but the pain is still fresh for Wayne Mattox of Winnsboro, whose brother was one of 37 to die in the crash.

Steve Mattox and his bride, Rita, vowed to spend the rest of their lives together that day, not knowing their lives would end just hours later.

News of Wednesday's airplane crash in Charlotte brought back a torrent of memories for the Mattox family and others.

Failure to follow procedures led to crash, board finds

By CHARLES POPE
Washington Bureau

WASHINGTON — USAir Flight 1016 crashed last year after its pilots blundered into a severe thunderstorm shrouding the Charlotte airport and then responded incorrectly when the threat was recognized, federal safety officials concluded Tuesday.

The picture painted by the Na

APRIL 5, 199

NO. 95
104TH YEAR
4 SECTIONS
46 PAGES

© 1995 THE STAT

cited

n dangerous weather
hear situation
sures to escape the wind shear

and complete weather

children
advisories

Failure to foll
procedures le
crash, board

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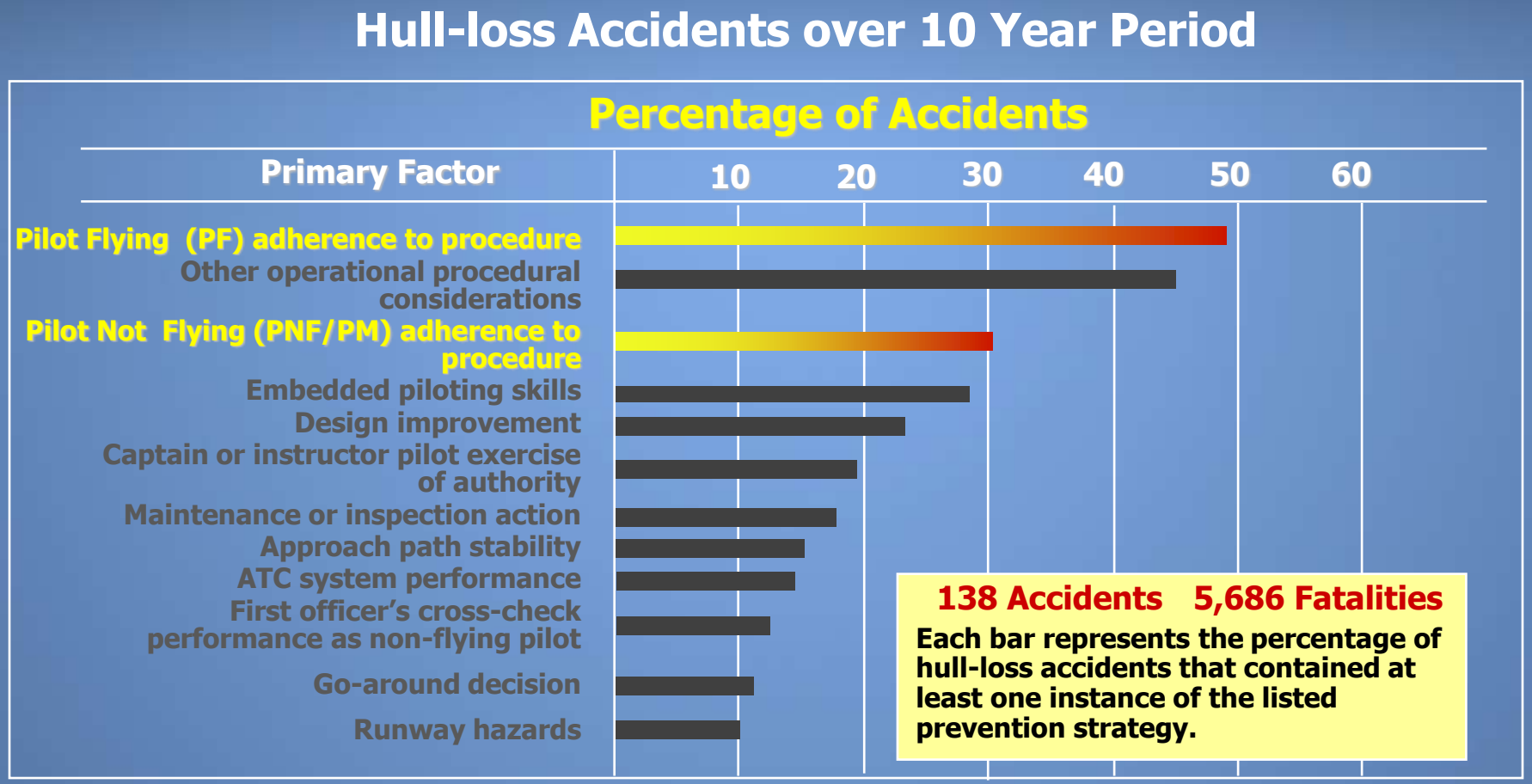
Lautman-Gallimore Study

- Found that having a strong commitment to standardization and discipline were among the “key elements of safe operations” observed in a Boeing study.

- “Cockpit procedural language is tightly controlled to maintain consistency and to avoid confusion from non-standard callouts …. Callouts and responses are done verbatim”

Accident Prevention Strategies

Source: Boeing study of accident prevention strategies



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Intentional non-compliance leads to other problems

- LOSA data revealed that, compared to crews who followed SOPs, crewmembers who intentionally deviated from procedures:
  - averaged making 3 times more errors
  - mismanaged more errors
  - found themselves in more undesired aircraft situations

PREAMBLE

This Flight Operations Manual provides policies and procedures for a
performance of their duties. It is intended to provide current, authorita
respect to the planning, management and implementation of Aviation
procedures contained in this manual are consistent with management

These policies and procedures have been developed to ensure the hi
followed. Recognizing that all situations cannot be covered in this ma
expected at all times to exercise sound judgment in the performance

Federal Aviation Regulations, aircraft and accessory manufacturers' r
policies and procedures also govern Aviation Department operations.
by reference and will not necessarily be reproduced in this manual.

This manual is a living document and will be revised as needed. The
actual operations of the Aviation Department.

A copy of this manual will be provided to each employee of the Aviati
manual will be kept onboard each aircraft. Each employee will be resp
date and record in the Record of Revisions each revision that is inser

This manual represents a consensual agreement between SCANA M
regarding the operations and maintenance of company aircraft and of

William B. Timmerman
Chief Executive Officer

1 Company Organization and Administrative Information

1.1 SCANA Aviation Department Vision, Mission and Purpose

Business Description of SCANA Aviation Department

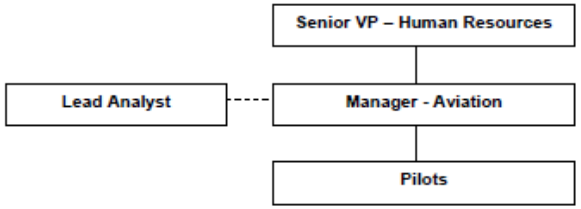
The SCANA Aviation Department provides safe, reliable, and cost-effective on-demand air transportation services for SCANA. SCANA offers this service as a business tool for the convenience, comfort and security of our people.

Strategic Direction of Department

The Aviation Department is focused on safety that is a result of operational excellence and professionalism – and on this we will not compromise. We strive to become a world-class aviation operation by identifying and exceeding industry best practices in safety, training, maintenance and procedures. We care deeply about the people we serve as we strive to become an indispensable part of the SCANA family.

1.2 Aviation Department Management Structure

The following is the organization structure of the SCANA Aviation Department:



1.3 Duties, Responsibilities, and Qualifications

1.3.1 Manager of Aviation

Reports to: Senior VP, Human Resources

Job Summary: Provides direction to assure Aviation Department performance achieves SCANA corporate goals and objectives associated with aviation safety, reliability, operational efficiency, productivity and customer satisfaction and monitors and administrates daily flight operations, maintenance and associated activities.

Duties and Responsibilities:

- Oversee and manage the SCANA Aviation Department, its personnel and aircraft;
- Ensure safety and security are the foremost goals of the Department;
- Serve as the primary interface between senior executive SCANA management and the Aviation Department;
- Ensure SCANA aircraft are safely, legally and properly scheduled, dispatched, operated and maintained, and that adequate records are kept to document compliance with these activities;
- Ensure SCANA Aviation personnel are properly trained and qualified and that adequate records are maintained to show compliance with these requirements;
- Develop and institute department policies and procedures that will accomplish the department's mission safely, effectively and efficiently.

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Free Lesson

"Learn from the mistakes of others. You won't live long enough to make them all yourself."

Creating a Future of Safety: Two Questions

1. What is our level of Professionalism, Standardization, and Procedural Compliance?
2. How strong is our Safety Culture?

Creating a Future of Safety

SAFETY CULTURE

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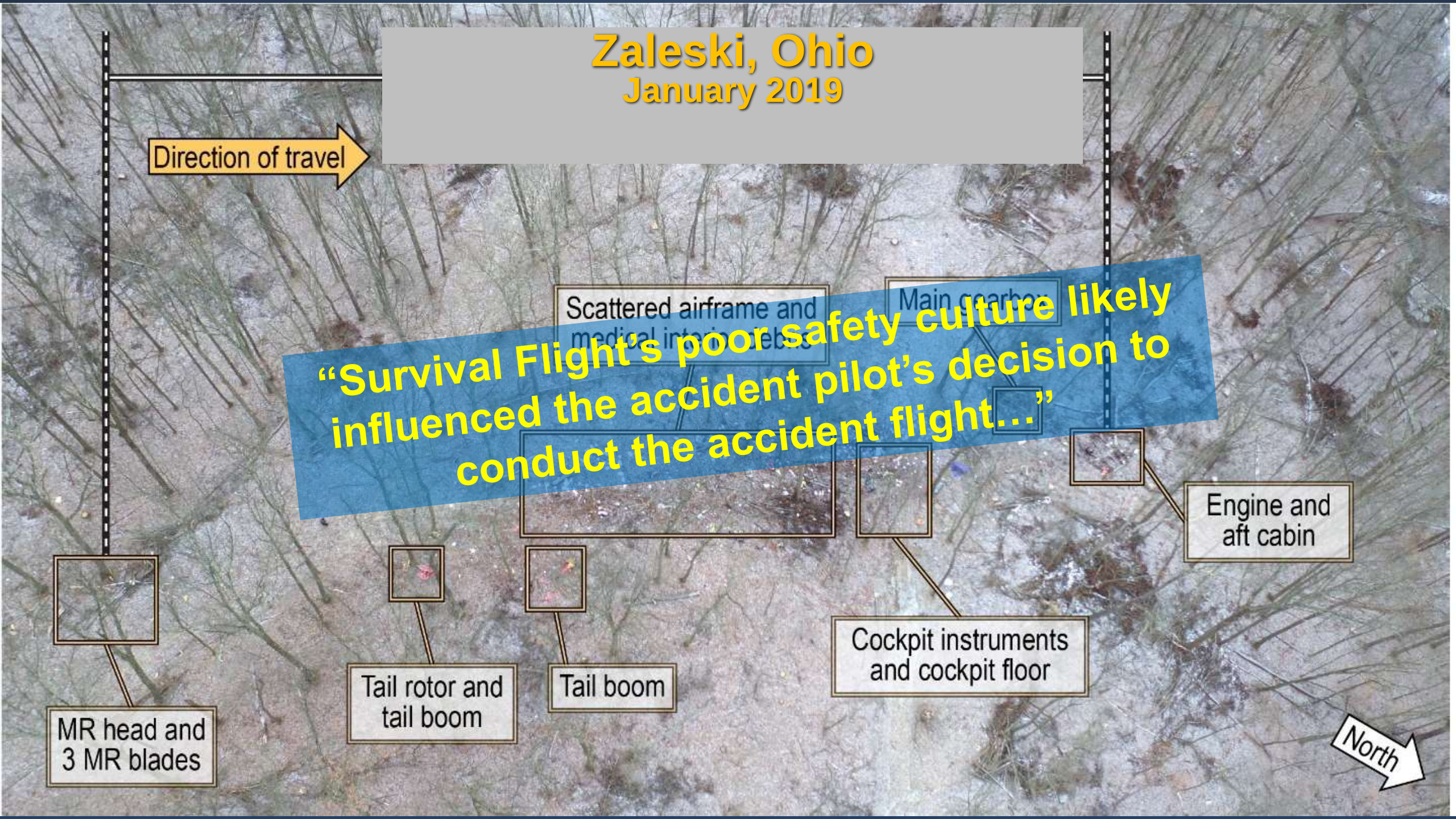
N191SF
FLIGHT
Turner



"Survival Flight's poor safety culture likely influenced the accident pilot's decision to conduct the accident flight…"

Near Santa Fe, NM

June 2009

"Contributing to the accident was an organizational culture that prioritized mission execution over aviation safety…"

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Safety Culture is:

"Safety culture is the core values and behaviors resulting from a collective commitment by leaders and individuals to emphasize safety over competing goals to ensure protection of people and the environment."

Source: U.S. Nuclear Regulatory Commission

Safety Culture

Doing the right things, even when no one is watching.

Do you have a good safety culture?

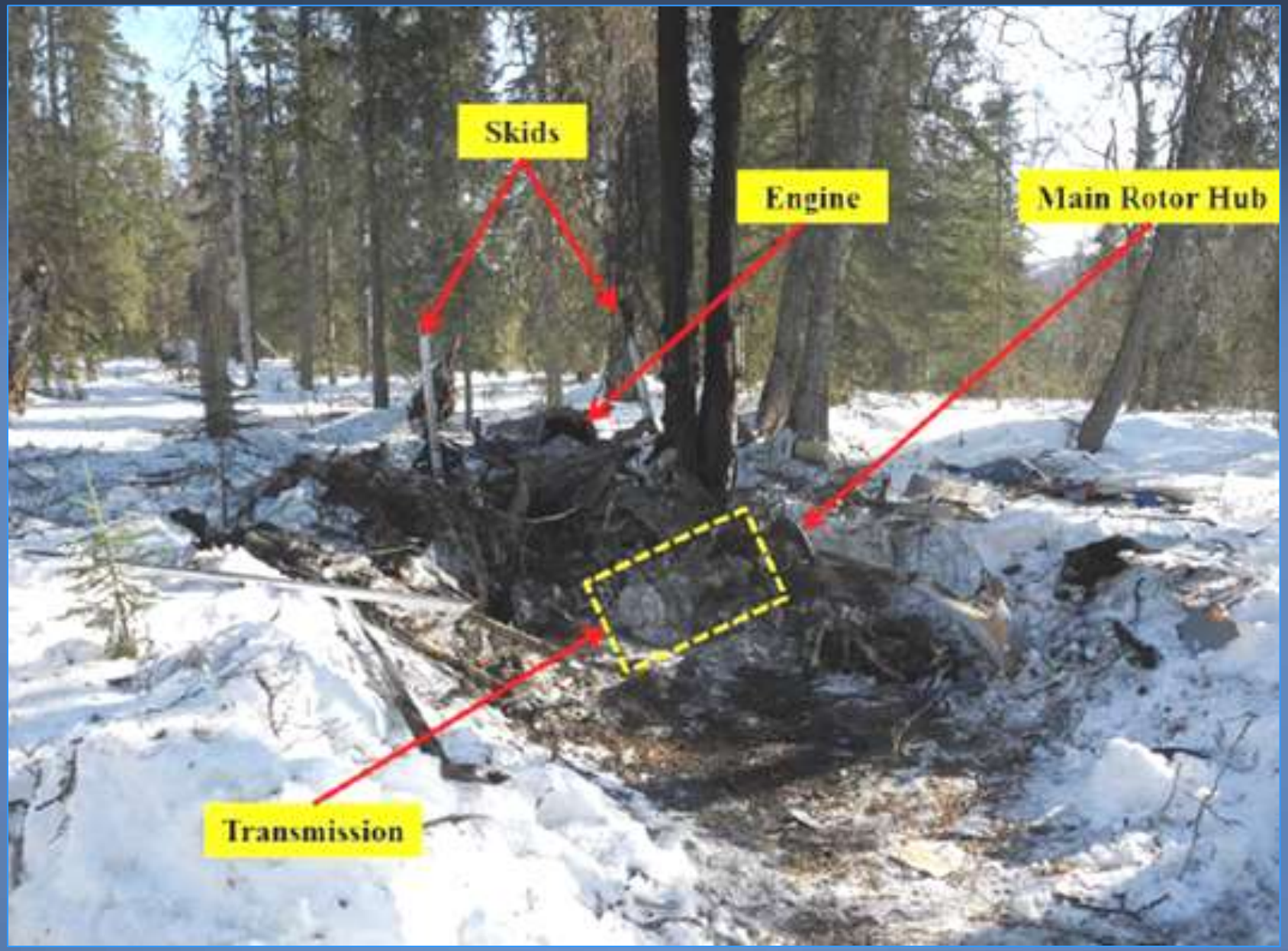
Do you have a good safety culture?

- "… it is worth pointing out that if you are convinced that your organization has a good safety culture, you are almost certainly mistaken."
- "… a safety culture is something that is striven for but rarely attained…"
- "… the process is more important than the product."

- James Reason, "Managing the Risks of Organizational Accidents."

Alaska DPS

- March 30, 2013
- Eurocopter AS350
- SAR flight
- Talkeetna, Alaska
- 3 fatalities


Skids
Engine
Main Rotor Hub
Transmission

NTSB Findings

- “The pilot’s exceptionally high motivation for search and rescue missions and past successes likely increased his risk tolerance and influenced his decision to continue flying in deteriorating weather conditions …”

- “The Alaska Department of Public Safety lacked organizational policies and procedures to ensure that operational risk was appropriately managed, such as formal pilot weather minimums, preflight risk assessment forms …”

Bedford, MA

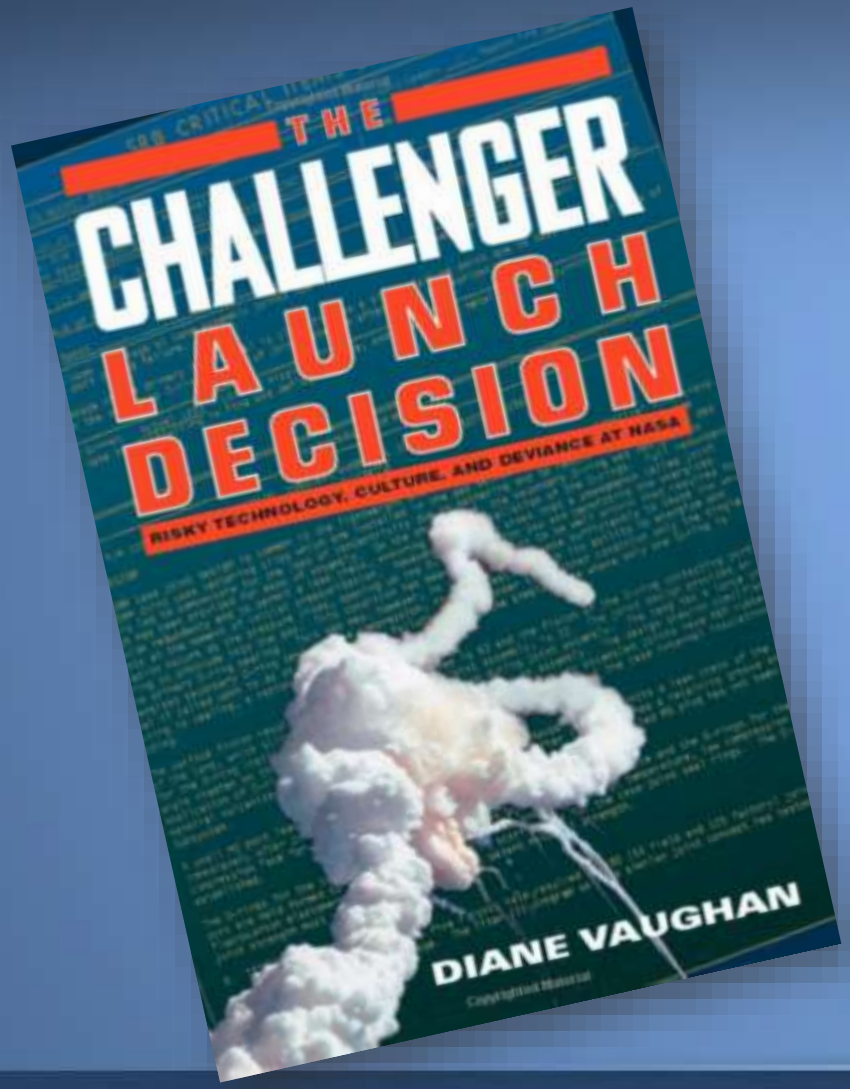
May 2014

“Good can be Bad”

- With good safety performance, people/organizations can easily become complacent.
- Don’t ever believe that a lack of accidents means you are “safe.”
- To counter this complacency, there must be a leadership obsession with continuous improvement.

- Courtesy of Jim Schultz

Avoid “Normalization of Deviance”



- Normalization of Deviance: When not following procedures and taking “short cuts” and becomes an accepted practice.

Avoid Selective Compliance

- “That is a stupid rule.”
- “I don’t have to comply with that one.”

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Crash sharpens painful memories of 1994 tragedy

By NICOLE SWEENEY and JEFF STENSLAND
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News of Wednesday's airplane crash in Charlotte brought back a torrent of memories for the Mattox family and others.

"I still think about it all the time, it's been a lot of years," Wayne "We could be visiting and we'll

FILE PHOTOGRAPH/THE STATE

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